

Michigan Department of Transportation

***ASSET***

***MANAGEMENT***

# ASSET MANAGEMENT

- P A strategic approach to managing our infrastructure
- P Investing wisely
- P Data are “corporate assets”

# MDOTASSETS

- P Over 9,700 miles of road (27,000 lane miles) and 5,679 bridges
- P 215 park-and ride lots
- P 2,400 trucks, maintenance vehicles, vans and cars
- P 450,000 signs; 4,025 traffic lights; 8 million linear feet of guardrails
- P 83 rest areas and 13 travel information centers
- P 85 roadside parks and 27 scenic turnouts
- P 41 picnic sites and 2,400 picnic tables
- P 163 pumphouses; 188 water wells; 54 sewage disposal facilities and 64,000 catch basins
- P Nearly 2,000 miles of non-motorized facilities; 700 miles of rail lines; 4,500 miles of fences

# 1990s

- P Passage of ISTEA
- P Department management made a major commitment to changing our business processes
- P Development of management systems and improvement our technological capabilities
- P Election of a Governor who stressed reorganization and operating more like a business
- P Federal move from capital only to more flexible funding – preventive maintenance

# MANY PARTNERSHIPS

- P AASHTO Task Force on Asset Management
- P FHWA – Office of Asset Management
- P Other transportation agencies and providers
- P Private Sector

## 2000 – LEGISLATIVELY APPOINTED COMMITTEE

- P Recommended all road agencies within the state should use asset management
- P Road and bridge data be contained in a common data base

# MDOT'S CONSTRUCT

- P Policy goals and objectives
- P Information and data collection
- P Planning and programming
- P Program delivery
- P Monitoring and reporting

# POLICY GOALS & OBJECTIVES

- P Development of a strategic plan
- P Managing for results
- P Focus on performance

# POLICY GOALS & OBJECTIVES

- P Michigan Transportation Policy Plan
- P State Long-Range Plan
- P Department's Business Plan
- P Program Specific Strategies:
  - P Strategy for Repairing & Rebuilding Roads
  - P Freeway Modernization Strategy
  - P Corridor Management Strategy
  - P Access Management Strategy
  - P Interchange Strategy
  - P Border Crossing & Trade Corridor Strategy
  - P Highway/Railroad Grade Crossing Hazard Elimination Strategy

# INFORMATION & DATA COLLECTION

- P Maintain high-quality information that supports asset management
- P Data viewed as a “corporate asset”
- P Information automated, integrated and accessible to all parties
- P Collect it once – Store it once – Use it over and over again!

# PLANNING & PROGRAMMING

- P Consider a range of alternatives in addressing problems and deficiencies
- P Procedures and evaluation criteria are consistent and reinforce policy goals and objectives
- P Decisions based on relative merit and an understanding of comparative costs and consequences

# ALTERNATIVE ANALYSES

- P Strategic rather than tactical
- P Decisions made with regard to the long-range condition of the entire system
- P Assessing improvements based on desired outcomes
- P Road Quality Forecasting System
- P Bridge Condition Forecasting System

# MDOT PROCESS HIGHWAYS

- P Strategic Analysis
- P Ride Quality Forcecasting/Remaining Service Life
- P Multi-year Strategy
- P Call for Projects
- P Candidate List of Projects
- P Prioritization Process
- P 5-Year Program
- P Monitor Progress: PASER

# PAVEMENT PRESERVATION

## STRATEGIC OBJECTIVES

- P Establish cost-effective, long- and short-range programs
- P Maximize benefits to the motoring public
- P Maximize pavement condition & minimize costs
- P Manage pavement not road condition

# PAVEMENT PRESERVATION STRATEGY

- P Mix of Fixes
- P Varying Fix Lives
- P Short-term versus Long-term
- P Meet Condition Goals

# BASIS FOR DECISIONS

P Road Quality Forecasting System

P Call for Projects

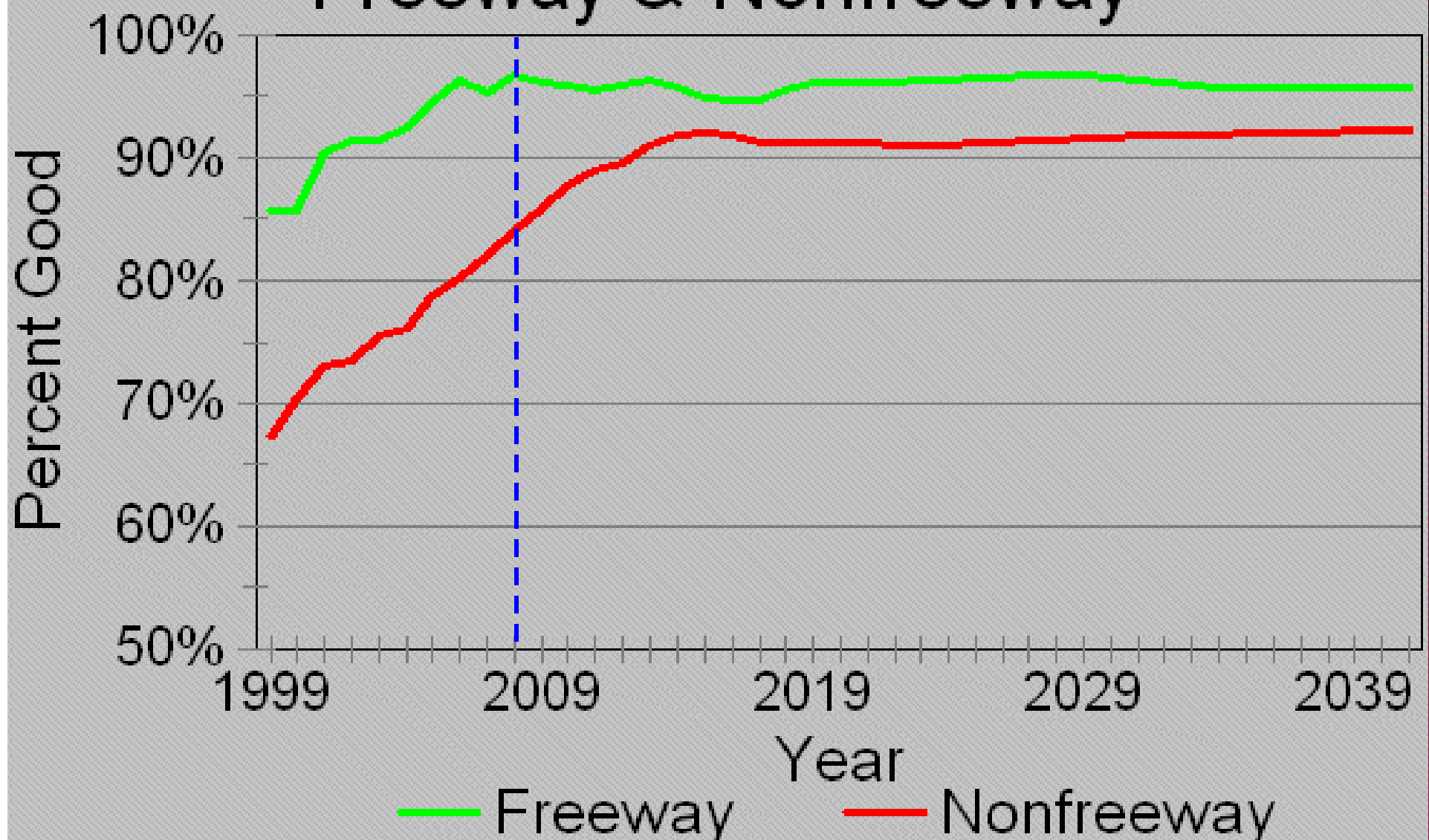
P Five-Year Road & Bridge Program

# ROAD QUALITY FORECASTING SYSTEM

- P Strategy analysis tool to project results of pavement rehabilitation policies
- P Remaining Service Life
- P Collection of fixes that will extend the life of the road
- P Analyze various pavement strategies and funding scenarios

# Road Quality Forecast

## Freeway & Nonfreeway



# CALL FOR PROJECTS

- P Heart of our asset management process
- P Project lists developed based on identified investment strategies
- P Fiscally-constrained

# HIGHWAYS: MIX OF FIXES

## PCAPITAL PREVENTIVE MAINTENANCE

- ▶ Short-term fix: 10 years or less

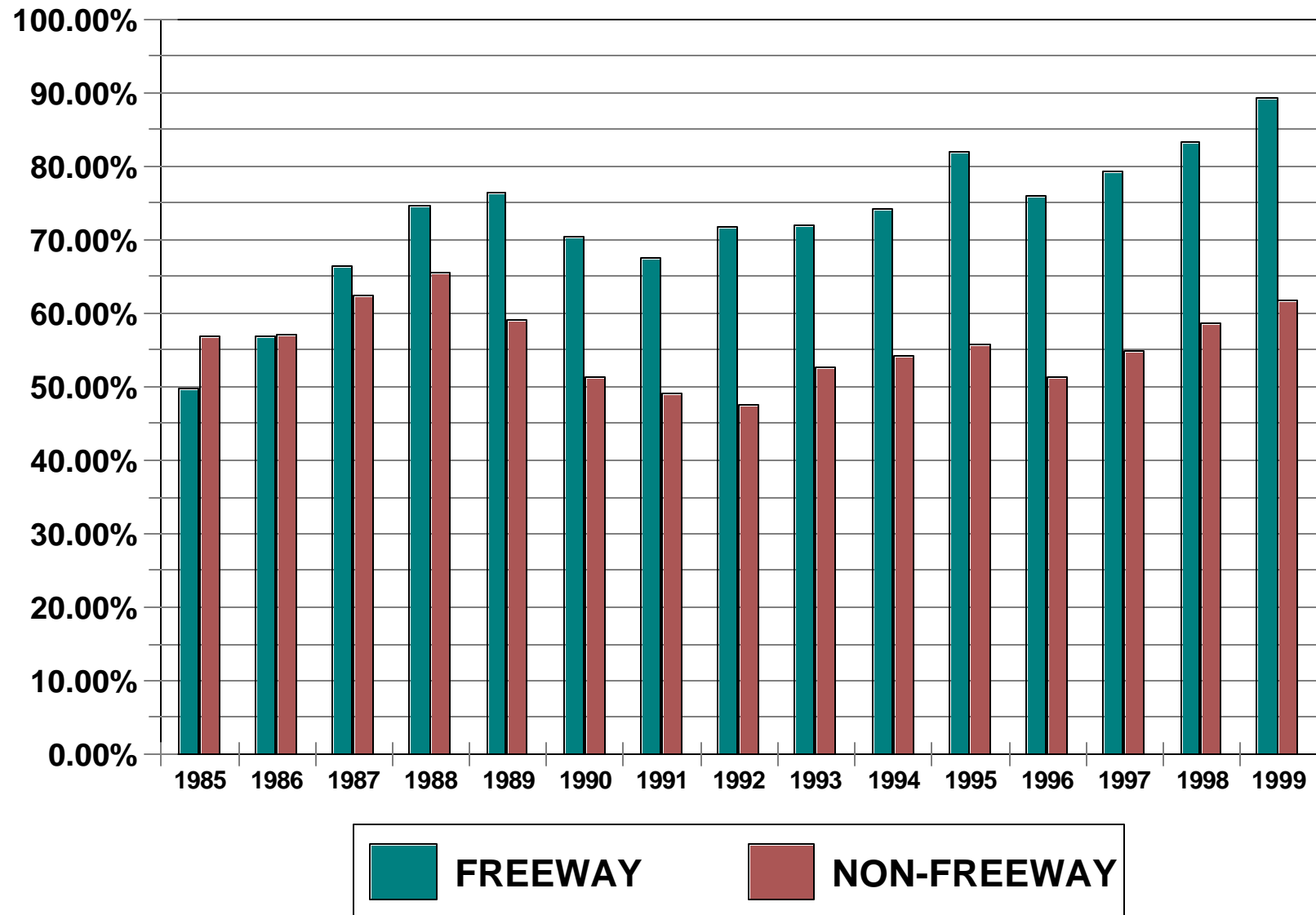
## PREHABILITATION

- ▶ Medium-term fix: 10-20 years

## PRECONSTRUCTION

- ▶ Long-term fix: 20 years or more

# SUFFICIENCY: ROUTE MILES GOOD UNIVERSITY REGION



# BRIDGE STRATEGY HISTORIC APPROACH

- P Structure-by-structure basis
- P Preservation strategies were reactive
- P Limited investment on “good” and “fair” structures
- P Maintenance was also reactive rather than preventative

# BRIDGE CONDITION FORECASTING SYSTEM (BFCS)

**P Need for network modeling tool**

- ▶ Modeling information
- ▶ Deterioration rates
- ▶ Historic cost data

**P Network impacts of work activities**

**P Assess current business practices**

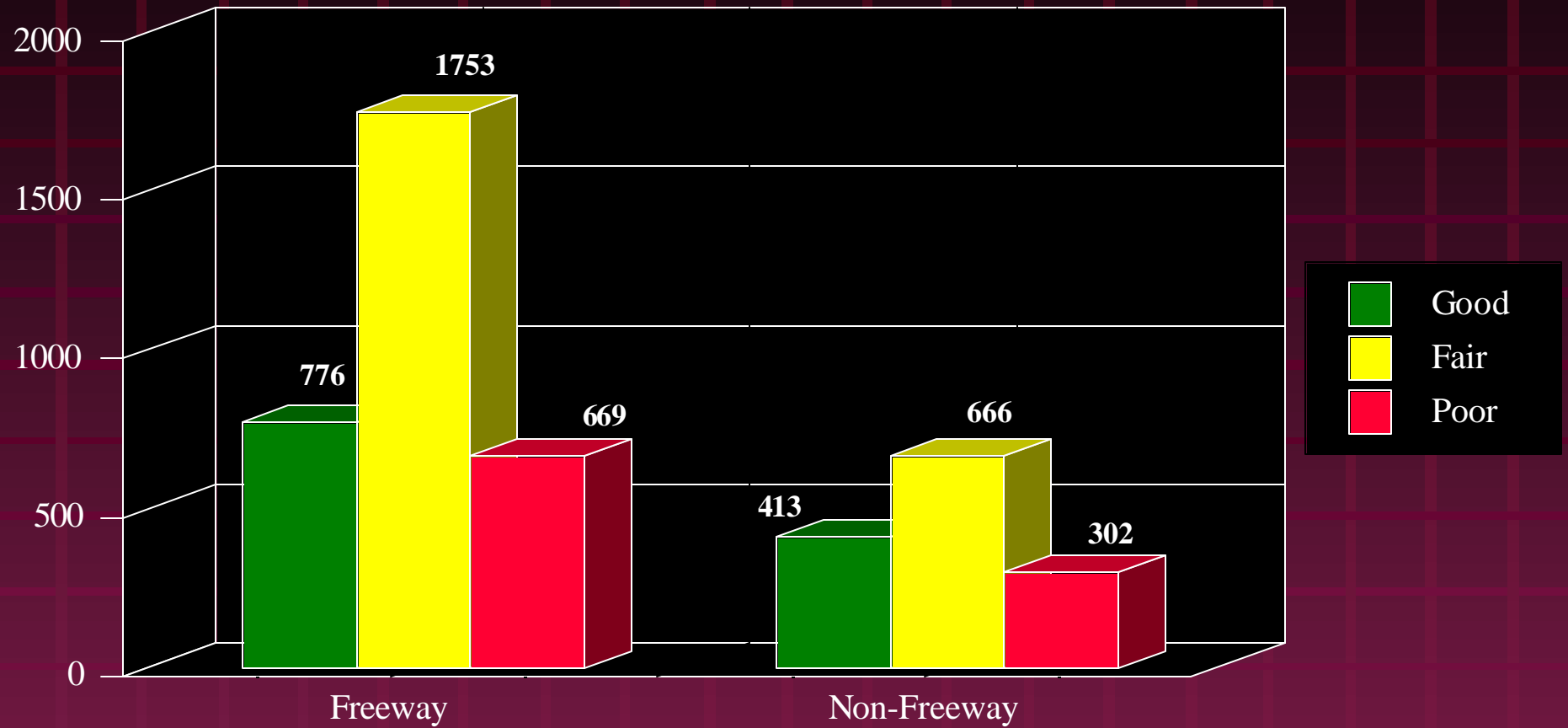
## BCFS PROVIDES NEW APPROACH

- P Address all structures of critical concern
- P Develop long-term network goals
- P Emphasize preservation
- P Proactively manage deterioration
- P Develop comprehensive maintenance plan
- P Commitment to allocate necessary resources
- P Strengthen organizational commitment

# BRIDGE PRESERVATION

- P Capital Scheduled Maintenance: Regularly scheduled activities that maintain serviceability**
- P Capital Preventive Maintenance: Scheduled work activities that restore element integrity**
- P Rehabilitation: Programmed work activities that improve element integrity**
- P Replacement: Replace element(s)**

# BRIDGE CONDITION



# 5-YEAR ROAD & BRIDGE PROGRAM

- P Identifies current investment strategies
- P Specific list of road and bridge projects
- P Rolling 5-year period

# 5-YEAR ROAD & BRIDGE PROGRAM

## Percent Rated "GOOD"

### PHIGHWAYS

- 95% of trunk line freeways
- 85% of trunk line non-freeways

### PBRIDGES

- 95% of trunk line freeway bridges
- 85% of trunk line non-freeway bridges

# BENEFITS OF NEW STRATEGY

- P Systematic approach to network
- P Proactively manages deterioration rates
- P Commitment to do the right work at the right time
- P Ability to meet established network goals

# PUBLIC TRANSPORTATION

- P Management system is used to administer our public transportation program
- P Utilized by all transit agencies
- P Contains a complete data base of transit agency needs and bus inventories
- P Submit annual applications by electronic means rather than paper reports

# INCLUDING OUR PARTNERS

## PILOT STUDY

- P Developed informal agreement with several counties and cities
- P Collect roadway condition data on the federal aid eligible system
- P Centralized database and sharing of resources

# CONCLUDING OBSERVATIONS

- P A way of **strategically managing** our system in a cost-effective, efficient manner
- P It's using data and technology in a **proactive** rather than reactive way
- P It is a **sensible** way of conducting business



**P** IT'S THE WAY WE DO  
BUSINESS